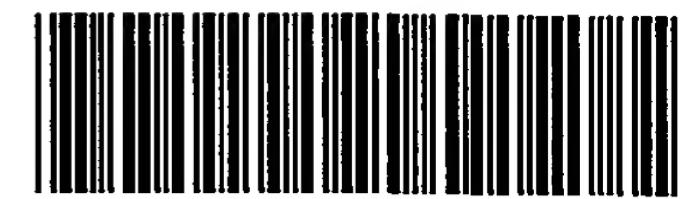


13



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RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/825,423C

DATE: 09/01/2004

TIME: 17:20:04

Input Set : A:\ID01152 Sequence Listing.txt
 Output Set: N:\CRF4\09012004\I825423C.raw

3 <110> APPLICANT: Weber, Patricia C.
 4 Reichert, Paul
 5 Madison, Vincent S.
 6 Wyss, Daniel
 7 Yao, Nanhua
 8 Liu, Dingjiang
 9 Gesell, Jennifer
 11 <120> TITLE OF INVENTION: Hepatitis C Virus NS3 Helicase Fragments
 13 <130> FILE REFERENCE: ID01152 US
 15 <140> CURRENT APPLICATION NUMBER: US 09/825,423C
 16 <141> CURRENT FILING DATE: 2001-04-03
 18 <150> PRIOR APPLICATION NUMBER: US 60/194,419
 19 <151> PRIOR FILING DATE: 2000-04-04
 21 <160> NUMBER OF SEQ ID NOS: 16
 23 <170> SOFTWARE: PatentIn Ver. 2.1
 25 <210> SEQ ID NO: 1
 26 <211> LENGTH: 631
 27 <212> TYPE: PRT
 28 <213> ORGANISM: Hepatitis C virus
 30 <400> SEQUENCE: 1
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 32 1 5 10 15
 34 Ile Ile Thr Ser Leu Thr Gly Arg Asp Lys Asn Gln Val Glu Gly Glu
 35 20 25 30
 37 Val Gln Ile Val Ser Thr Ala Thr Gln Thr Phe Leu Ala Thr Cys Ile
 38 35 40 45
 40 Asn Gly Val Cys Trp Thr Val Tyr His Gly Ala Gly Thr Arg Thr Ile
 41 50 55 60
 43 Ala Ser Pro Lys Gly Pro Val Ile Gln Met Tyr Thr Asn Val Asp Gln
 44 65 70 75 80
 46 Asp Leu Val Gly Trp Pro Ala Pro Gln Gly Ser Arg Ser Leu Thr Pro
 47 85 90 95
 49 Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu Val Thr Arg His Ala Asp
 50 100 105 110
 52 Val Ile Pro Val Arg Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu Ser
 53 115 120 125
 55 Pro Arg Pro Ile Ser Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu Leu
 56 130 135 140
 58 Cys Pro Ala Gly His Ala Val Gly Leu Phe Arg Ala Ala Val Cys Thr
 59 145 150 155 160
 61 Arg Gly Val Thr Lys Ala Val Asp Phe Ile Pro Val Glu Asn Leu Glu
 62 165 170 175
 64 Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala

ENTERED

RAW SEQUENCE LISTING DATE: 09/01/2004
PATENT APPLICATION: US/09/825,423C **TIME:** 17:20:04

Input Set : A:\ID01152 Sequence Listing.txt
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65	180	185	190
67	Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser		
68	195	200	205
70	Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys		
71	210	215	220
73	Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala		
74	225	230	235
76	Tyr Met Ser Lys Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val		
77	245	250	255
79	Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys		
80	260	265	270
82	Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile		
83	275	280	285
85	Cys Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly		
86	290	295	300
88	Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu		
89	305	310	315
91	320		
92	Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Val Pro His Pro Asn Ile		
94	325	330	335
95	Glu Glu Val Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys		
97	340	345	350
98	Ala Ile Pro Leu Glu Val Ile Lys Gly Gly Arg His Leu Ile Phe Cys		
100	355	360	365
101	His Ser Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Val Ala Leu		
103	370	375	380
104	Gly Ile Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile		
106	385	390	395
107	400		
109	Pro Thr Asn Gly Asp Val Val Val Val Ala Thr Asp Ala Leu Met Thr		
110	405	410	415
112	Gly Phe Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val		
113	420	425	430
115	Thr Gln Thr Val Asp Phe Ser Leu Asp Pro Thr Phe Thr Ile Glu Thr		
116	435	440	445
118	Thr Thr Leu Pro Gln Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg		
119	450	455	460
121	Thr Gly Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu		
122	465	470	475
124	480		
125	Arg Pro Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu Cys Tyr Asp		
127	485	490	495
128	Ala Gly Cys Ala Trp Tyr Glu Leu Thr Pro Ala Glu Thr Thr Val Arg		
130	500	505	510
131	Leu Arg Ala Tyr Met Asn Thr Pro Gly Leu Pro Val Cys Gln Asp His		
133	515	520	525
134	Leu Glu Phe Trp Glu Gly Val Phe Thr Gly Leu Thr His Ile Asp Ala		
136	530	535	540
137	His Phe Leu Ser Gln Thr Lys Gln Ser Gly Glu Asn Phe Pro Tyr Leu		
138	545	550	555
139	Val Ala Tyr Gln Ala Thr Val Cys Ala Arg Ala Gln Ala Pro Pro Pro		
140	565	570	575

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/825,423C

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Input Set : A:\ID01152 Sequence Listing.txt
Output Set: N:\CRF4\09012004\I825423C.raw

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139 Ser Trp Asp Gln Met Trp Lys Cys Leu Ile Arg Leu Lys Pro Thr Leu
140           580           585           590
142 His Gly Pro Thr Pro Leu Leu Tyr Arg Leu Gly Ala Val Gln Asn Glu
143           595           600           605
145 Val Thr Leu Thr His Pro Ile Thr Lys Tyr Ile Met Thr Cys Met Ser
146           610           615           620
148 Ala Asp Leu Glu Val Val Thr
149 625           630
153 <210> SEQ ID NO: 2
154 <211> LENGTH: 4
155 <212> TYPE: PRT
156 <213> ORGANISM: Artificial Sequence
158 <220> FEATURE:
159 <223> OTHER INFORMATION: Mutated Hepatitis C virus peptide
161 <400> SEQUENCE: 2
162 Ser Asp Gly Lys
163   1
167 <210> SEQ ID NO: 3
168 <211> LENGTH: 148
169 <212> TYPE: PRT
170 <213> ORGANISM: Hepatitis C virus
172 <400> SEQUENCE: 3
173 Gly Ser His Met Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala
174   1           5           10           15
176 Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser
177   20          25          30
179 Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys
180   35          40          45
182 Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala
183   50          55          60
185 Tyr Met Ser Lys Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val
186   65          70          75          80
188 Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys
189   85          90          95
191 Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile
192   100         105         110
194 Cys Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly
195   115         120         125
197 Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu
198   130         135         140
200 Ala Thr Ala Thr
201 145
205 <210> SEQ ID NO: 4
206 <211> LENGTH: 142
207 <212> TYPE: PRT
208 <213> ORGANISM: Hepatitis C virus
210 <400> SEQUENCE: 4
211 Gly Ser His Met Gly Ser Val Thr Val Pro His Pro Asn Ile Glu Glu
212   1           5           10           15

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RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/825,423C

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Input Set : A:\ID01152 Sequence Listing.txt
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```

214 Val Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile
215          20           25           30
217 Pro Leu Glu Val Ile Lys Gly Gly Arg His Leu Ile Phe Cys His Ser
218          35           40           45
220 Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Val Ala Leu Gly Ile
221          50           55           60
223 Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile Pro Thr
224          65           70           75           80
226 Asn Gly Asp Val Val Val Val Ala Thr Asp Ala Leu Met Thr Gly Phe
227          85           90           95
229 Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Ser Asp Gly Lys
230          100          105          110
232 Pro Gln Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg Thr Gly Arg
233          115          120          125
235 Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu Arg
236          130          135          140
240 <210> SEQ ID NO: 5
241 <211> LENGTH: 288
242 <212> TYPE: PRT
243 <213> ORGANISM: Hepatitis C virus
245 <400> SEQUENCE: 5
246 Gly Ser His Met Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala
247          1           5           10           15
249 Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser
250          20          25           30
252 Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys
253          35          40           45
255 Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala
256          50          55           60
258 Tyr Met Ser Lys Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val
259          65          70           75           80
261 Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys
262          85          90           95
264 Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile
265          100         105           110
267 Cys Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly
268          115         120           125
270 Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu
271          130         135           140
273 Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Val Pro His Pro Asn Ile
274          145         150           155           160
276 Glu Glu Val Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys
277          165         170           175
279 Ala Ile Pro Leu Glu Val Ile Lys Gly Gly Arg His Leu Ile Phe Cys
280          180         185           190
282 His Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Val Ala Leu
283          195         200           205
285 Gly Ile Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile
286          210         215           220

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RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/825,423C

DATE: 09/01/2004
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Input Set : A:\ID01152 Sequence Listing.txt
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288 Pro Thr Asn Gly Asp Val Val Val Ala Thr Asp Ala Leu Met Thr
289 225 230 235 240
291 Gly Phe Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Ser Asp
292 245 250 255
294 Gly Lys Pro Gln Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg Thr
295 260 265 270
297 Gly Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu Arg
298 275 280 285
305 <210> SEQ ID NO: 6
306 <211> LENGTH: 241
307 <212> TYPE: PRT
308 <213> ORGANISM: Hepatitis C virus
310 <400> SEQUENCE: 6
311 Gly Ser His Met Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala
312 1 5 10 15
314 Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser
315 20 25 30
317 Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys
318 35 40 45
320 Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala
321 50 55 60
323 Tyr Met Ser Lys Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val
324 65 70 75 80
326 Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys
327 85 90 95
329 Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile
330 100 105 110
332 Cys Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly
333 115 120 125
335 Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu
336 130 135 140
338 Ala Thr Ala Thr Pro Pro Gly Ser Gly Met Phe Asp Ser Ser Val Leu
339 145 150 155 160
341 Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu Thr Pro Ala
342 165 170 175
344 Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr Pro Gly Leu Pro
345 180 185 190
347 Val Cys Gln Asp His Leu Glu Phe Trp Glu Gly Val Phe Thr Gly Leu
348 195 200 205
350 Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln Ser Gly Glu
351 210 215 220
353 Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys Ala Arg Ala
354 225 230 235 240
356 Gln
361 <210> SEQ ID NO: 7
362 <211> LENGTH: 4
363 <212> TYPE: PRT
364 <213> ORGANISM: Artificial Sequence
366 <220> FEATURE:

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/825,423C

DATE: 09/01/2004

TIME: 17:20:05

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